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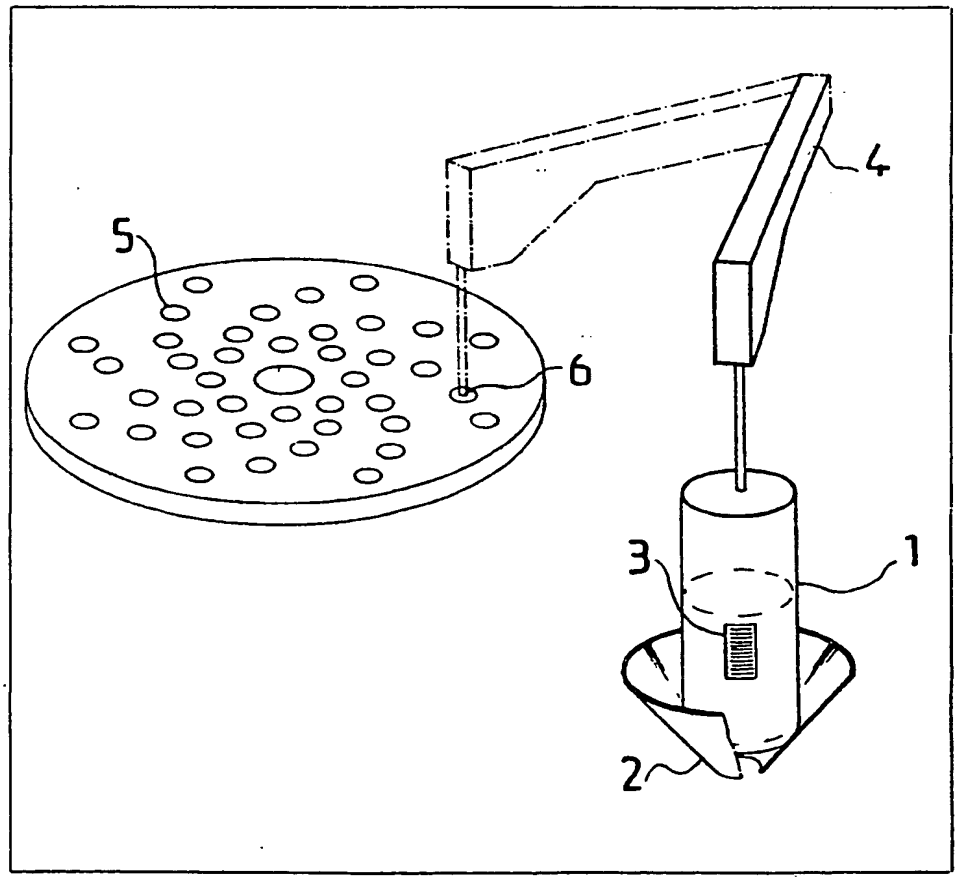
(54) Procedure and means for ensuring presentation and identification of a sample to be analysed

(57) In a procedure for ensuring positive presentation and identification of samples, wherein the samples with their test requests are presented one at a time to the apparatus performing the analysis, the basic sample tube (1) is inserted in the guide (2) of the sample mover, the identification data on tag (3) being at the same time read and stored in a memory of the apparatus, whereafter a sample mover arm (4) takes a desired quantity of the sample and transfers it into a sample register (5) to that location (6) which is determined by the computer of the apparatus and which is retained in memory throughout the process.



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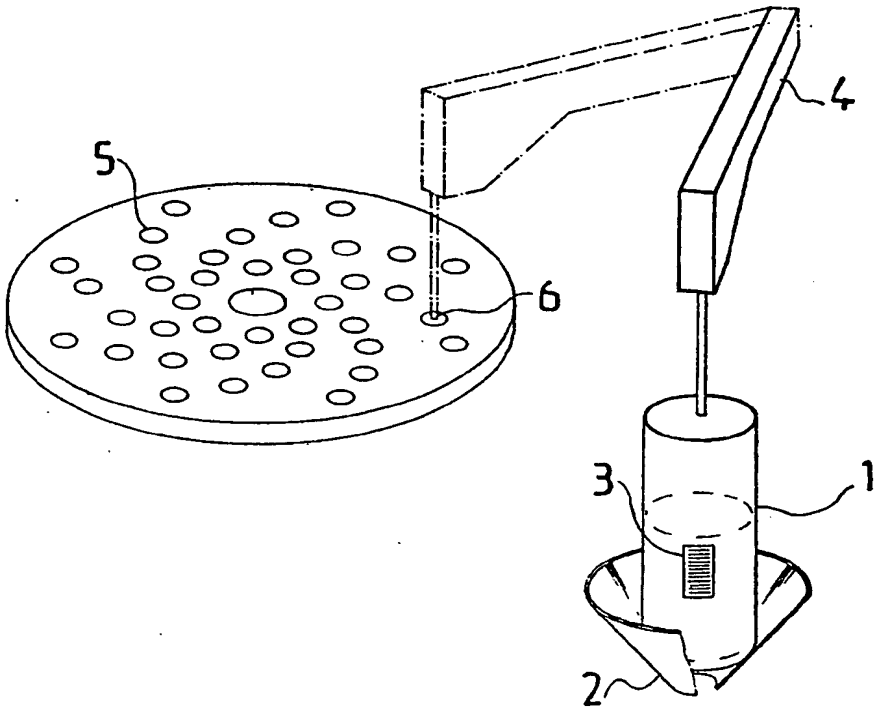

SPECIFICATION

Procedure and means for ensuring presentation and identification of a sample

The present invention concerns a procedure and means for ensuring the presentation and identification of samples, wherein the samples together with their test requests are presented, one at a time, to the means carrying out the analysis.

The principle is common in which the sample is pre-dispensed (or decanted) into a sample beaker fitting into the analyser from that basic sample tube in which the sample is brought to the laboratory to be used possibly for a plurality of different analyses, or in a plurality of analysers. The next step is loading the sample cups into a disk or equivalent frame and to feed the data to the analyser from a keyboard or by another equivalent piece of data equipment.

The risk incurred is that of the sample tubes getting mixed up. The blood and sample tubes may already at the decanting step be confused quite easily, and the same danger is also present at the sample presentation stage, because the tube may be inserted in the sample register in any position.

The object of the present invention is to eliminate the risk of mixing up laboratory samples at their pre-treatment and insertion for analysis in a laboratory analyser.

In order to achieve the stated effect, the procedure of the invention is characterized in that the basic sample tube is placed in a sample tube holder at the same time as the presenting of identification data and test requests to the apparatus, whereafter a sample mover arm picks up the desired quantity of the sample and transfers it to the sample register into the location determined by the computer and which remains in memory throughout the process.

The procedure of the invention is also characterized in that the undecanted basic sample tube is used as sample tube for insertion in the sample mover. Hereby it becomes possible for instance to transfer the sample tube to another point of analysis on completed presentation and predispensing. Hereby the entire operation of the laboratory is made more efficient.

The apparatus carrying out the procedure of the invention is characterized in that the apparatus comprises a sample mover arm provided with a liquid level sensor and a holder for sample tubes, able to take up sample tubes of various sizes.

The apparatus of the invention is also characterized in that the holder for the sample tube is a conical adapter fitted with springs.

The analyser usually has only one site, in which one sample tube at a time can be placed. This prevents a sample which has been correctly presented in itself from being inserted in a wrong position. The predispensing eliminates the need of extra sample volume, because the computer calculates the quantity required in the analyses that are presented. Since the original sample tube is not stored in the analysers, a great number of samples can be accommodated in minimum space, implying that in normal operation no change of sample register is required during the day.

The invention is described in the following with the aid of an example, referring to the drawing attached, illustrating the sample pick-up arm and its mode of operation.

The basic blood tube is placed in the guide 2 of the sample mover. The patient identification data are read with an optical code reader from the tag 3 on the tube side. The data go to the analyser's memory bank. Thereafter, the arm 4 of the sample mover takes up the desired quantity of the sample with its suction tip and transfers it into the sample register 5, to the location 6 selected by the computer of the apparatus. A separate sample dispensing system then carries the exactly dosed sample quantity into the sample cup for analysis. This results in absolutely positive retention of the sample identification.

It is obvious to a person skilled in the art that the invention is not exclusively confined to the example presented in the foregoing and may instead be modified within the scope of the claims stated below. For instance, the procedure is applicable in any such sector of chemistry where a plurality of samples at one time are loaded into an analyser or apparatus for processing and the identification must be retained during the process.

The sample identification may be read automatically e.g. with an optical or magnetic code reader, or it may be input from a keyboard.

CLAIMS

1. A procedure for ensuring the presentation and identification of samples, wherein the samples with test requests are presented one at a time to the apparatus performing the analysis, characterized in that the basic sample tube (1) is inserted in a sample tube holder (2), at the same time the identification data and test requests being presented to the apparatus, whereafter a sample mover arm (4) takes up the desired quantity of the sample and transfers it into the sample register (5) to the location which is determined by the computer (6) of the apparatus and retained in memory throughout the process.

2. Procedure according to claim 1, characterized in that the undecanted basic sample tube is used as sample tube (1) for mounting in the sample mover.

3. An apparatus carrying out a procedure according to claim 1, comprising an analyser

and a sample register (5) serving as sample magazine thereof, characterized in that the apparatus is provided with a sample mover arm (4) provided with a liquid level sensor and a sample tube holder (2) in which sample tubes of different sizes can be accommodated.

4. An apparatus according to claim 3, characterized in that the sample tube holder (2) is a conical adapter fitted with springs.

5. A procedure for ensuring the presentation and identification of samples, substantially as herein described with reference to the accompanying drawing.

6. An apparatus carrying out a procedure for ensuring the presentation and identification of samples, substantially as herein described with reference to the accompanying drawing.

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